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SCREW-THREAD STANDARDS FOR FEDERAL SERVICES

Handbook H25, "Screw-Thread Standards for Federal Services 1939," has just been released. This is a republication of the standards established by the former National Screw Thread Commission in 1933, except for certain minor corrections and editorial changes, and has been approved by the Interdepartmental Screw Thread Committee for use in the Departments of War, Navy, and Commerce. It presents complete dimensional data upon which specifications may be based for threaded products for Government requirements. The standards are intended to conform to generally accepted commercial practice, although certain special requirements of the Government necessitate the inclusion of some standards not ordinarily applicable outside the Government services. Certain additions and revisions to these standards, however, are now under consideration by the Interdepartmental Screw Thread Committee which is working in cooperation with a sectional committee organized under the procedure of the American Standards Association.

Copies of H25 can be purchased for 20 cents each from the Superintendent of Documents, Government Printing Office, Washington, D. C.

NEW CIRCULAR ON LEGAL BUSHEL WEIGHTS

In recent years, numerous changes have been made in the legal weights for fruits, vegetables, and other dry commodities as established by the laws of the several States. In some cases, values previously fixed have been changed, or values for commodities not previously listed have been added. Occasionally a commodity previously listed has been withdrawn, and in one case a State repealed all bushel weights in favor of a requirement for sales based on weight.

Circular C425, which has just been released, is a revision of the bushel-weight information previously published by the Bureau in its Circular C10 and represents the latest information available at the time of publication.

The new Circular is obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 5 cents a copy.

[1] Published with approval of the Director of the Budget.

WHAT IS THE MATTER WITH BUILDING CODES?

There is much current criticism of local building codes usually to the effect that the requirements of such codes are "antiquated" and "outmoded." In an article by George N. Thompson in the February number of "Public Management," an effort is made to ascertain more precisely just what are the causes for dissatisfaction and to explore the possibilities for improvement. In general, criticism is found to center around charges that excessive quantities of materials are demanded by codes, thereby causing unnecessary costs, and that new materials and new methods of construction do not receive the recognition that they deserve. It is pointed out that reductions in required amounts of materials are dependent on more exact knowledge of the characteristics of such materials. It is also shown that many existing codes make provision for accepting new materials, but that the machinery for making use of this procedure is defective. Work now going on at the Bureau in the field of testing materials proposed for use in low-cost housing is cited as offering encouragement for the belief that simple but adequate methods for judging new materials and new constructions can be worked out. Reference is also made to the fact that recurrent criticism of building-code requirements should diminish with the completion of recommended standards now in process of development under the procedure of the American Standards Association with the cooperation of the National Bureau of Standards.

"DUNSTONE" WALL CONSTRUCTION FOR LOW-COST HOUSES

Tests of 24 specimens of two designs of hollow walls built with "Dunstone" concrete blocks are described in Building Materials and Structures Report BMS38, recently released. These blocks were submitted by the W. E. Dunn Manufacturing Co. and are manufactured under franchise by the Silver Hill Brick & Tile Co.

The walls were subjected to loads simulating those in actual service, as previously described in articles on similar work in this Bulletin. The results are presented in a table and also in graphical form.

Orders for BMS38 should be sent to the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 10 cents.

STRUCTURAL PROPERTIES OF "PFEIFER UNITS" WALL CONSTRUCTION

Building Materials and Structures Report BMS39 gives the results of tests on 18 wall specimens submitted by the Wisconsin Units Co. These represented a wall construction made of reinforced concrete units marketed under the trade name "Pfeifer Units."

Three like specimens in each case were subjected to compressive, transverse, concentrated, impact, and racking loads. The deformation under load and the set after its removal were measured for uniform increments of load. The results are presented in graphs and in tables.

Copies of BMS39 are obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C. The price is 10 cents.

PLASTIC CALKING MATERIALS

In masonry buildings, as well as in some other types of construction, joints will be found which vary in width because of temperature changes, settlement, etc. Mortar does not "give" enough to maintain watertight or airtight joints in such cases. Plastic calking compounds are therefore used, because they can adjust themselves to comparatively large structural movements, their value depending mainly on their ability to remain plastic.

A study of watertight joint fillers is being made at the Bureau mainly for the purpose of devising tests which will enable the purchaser to determine the serviceability of such products. Inspections of buildings and joint specimens after several years of exposure to the weather have been made and the types of failure studied. As a result of this work, it has been concluded that tests for shrinkage, rate of hardening, bond, tenacity, staining, and slumping should give good indications of performance. Since calking compounds are commonly used in contact with porous materials, the absorptive properties of which affect the performance, it is necessary to employ an accessory porous material in the testing. For this purpose a certain limestone has been selected because of its uniformity. The tests require three specimens for each sample and on these, eight different determinations can be made.

Chemical analyses on a large number of proprietary compounds have indicated that a variety of compositions are

used in their manufacture. Most of these consist of finely ground materials, such as whiting, silica, talc, etc., mixed with blown or polymerized oils. Fish, soybean, linseed, and tung oils are those most commonly used. Cottonseed and rapeseed oils are employed in some mixtures, while there are a few brands in which the vehicle consists of rosin, tallow, or synthetic resin. Most of the compounds contain some volatile thinner, and practically all incorporate 5 to 10 percent of fibrous material—usually asbestos. A study of the effects of various ingredients, by means of experimental mixtures, indicates that proper pretreatment of the oil is of first importance and that care must be exercised in selecting fillers as well as in avoiding an excess of volatile thinner. Certain factors which affect the performance of plastic calking compounds in service have been studied. Compounds that give satisfactory service in one type of masonry do not always give similar results in other types. Often very porous masonry absorbs less of the vehicle than much denser materials, because the capillary forces in fine pores are higher than in large ones. A compound giving satisfactory results in wide joints may fail entirely in narrow ones. Primers may reduce the shrinkage of mixtures having pronounced staining characteristics, but they sometimes interfere with the bond. in general, a properly prepared calking compound will give as good results without a primer as when the surfaces are primed.

The complete account of this work has been published as Building Materials and Structures Report BMS33, copies of which are obtainable from the Superintendent of Documents, Government Printing Office, Washington, D. C., at 10 cents each.

SERICIN IN RAW SILK

Raw silk fibers consist of at least two proteins, silk fibroin and silk sericin. The latter forms a coating over the fibroin and and constitutes 15 to 30 percent of the total weight of the raw fiber. In practical silk processing, the sericin is generally allowed to remain on the fiber until the fabric is ready to be dyed. In this way, it acts as a protective coating for the silk in the weaving or knitting operations.

Removal of the sericin is usually accomplished with hot soap solutions. The results of numerous studies of this process led earlier investigators to a variety of concepts concerning the state and properties of the sericin in the raw silk fiber. Some stated that the sericin is a single protein substance, whereas others claimed it to be a mixture of proteins which they designated as sericins *A*, *B*, etc. The latter concept formed the basis for further claims concerning the desirability of retaining certain fractions of the sericin to improve some ultimate properties of the silk. As many of these claims were based on insufficient experimental evidence, it seemed desirable to make a more extensive investigation of the question of the possible existence of several fractions of the sericin in raw silk.

The results of such an investigation by Henry A. Rutherford and Milton Harris, and reported in the Journal of Research for April (RP 1290), show that the relative yields of the so-called sericins *A* and *B*, obtained after treatment of silk in an autoclave, were dependent on the duration of the treatment. Practically all of the sericin removed in the early stages of autoclaving was in the form generally designated as sericin *B*. On continuing the treatment, this fraction was rapidly converted into the more soluble form, sericin *A*. Analyses of the fractions, obtained after autoclaving the silk for different lengths of time, showed that the alleged sericins *A* and *B* are not definite chemical entities, but are substances, the chemical compositions of which vary with the duration of the autoclave treatment. It is concluded from these studies that the sericin in raw silk does not exist as a mixture of fractions, but that the fractions are artifacts which result from the hydrolytic decomposition of the naturally occurring sericin during its removal from the raw fibers.

SIZE OF PORES IN PAPER

Many workers have been interested in determining the size of the pores, or tiny passages through paper, and have expended considerable effort in trying to measure their size. Such knowledge is valuable in problems involving the saturation of paper with liquids, in the use of filtering media, in the study of volumetric composition, in the design of paper for particular uses, and in other problems requiring a knowledge of the structure of paper.

The methods most used in attempting to measure the size of the pores in paper are of three general types: (*a*) those depending upon a measurement of the rate of efflux of fluids; (*b*)

those depending upon a measurement of the rate of rise of liquids in vertical strips of paper; and (*c*) those depending upon a measurement of the capillary pressure involved in the penetration of paper by liquids.

As described in the Journal of Research for April (RP1292), F. T. Carson, of the Bureau's Paper Section, has developed a new method which takes advantage of the fact that the friction between a gas and the walls of a capillary tube through which it flows varies with the pressure of the gas. A well-known theoretical equation designed to describe the flow of a gas through a capillary tube is used in formulating an expression for the average effective radius of the pores in a sheet of paper, in terms of the air permeability at different pressures. With this method, therefore, it is only necessary to determine the air permeability accurately at two different pressures, in order to calculate the size of the pores. Means of accurately measuring the air permeability of paper have previously been described.

RP1292 includes experimental data on five papers, together with the calculated value of the average effective pore radius in each case. The values are in the neighborhood of a thousandth of a millimeter.

USE OF SPECTROPHOTOMETERS IN THE PAPER INDUSTRY

In an article prepared for the Paper Trade Journal, K. S. Gibson, chief of the Bureau's Colorimetry Section, points out that recent progress in spectrophotometry in the visible spectrum has been largely along photoelectric lines. Most of the new instruments, however, have been designed for transmission measurements only, and are of little direct interest to the pulp and paper industry. Reference is made to various previous surveys of spectrophotometry, and the present paper brings the subject up to date, with particular emphasis on reflection measurements.

Visual spectrophotometric measurements have proved inadequate for the accurate colorimetric specification of white and near-white materials. Small changes or differences of spectral reflection have an important effect on the colors of these materials, even though these differences may be of the order of magnitude of the uncertainties inherent in visual spectrophotometry. The photoelectric cell, on the other hand, is ideally adapted to the determination of small differences, and if used in apparatus designed on sound electrical and optical principles is capable of yielding spectrophotometric measurements that are both precise and accurate.

All reflection spectrophotometers measure the apparent reflectance of a material relative to the apparent reflectance of a working standard, under certain fixed conditions of illumination and observation. The concept of apparent reflectance, the importance of determining the most desirable conditions of illumination and viewing, and the question of primary and secondary standards of apparent reflectance, are accordingly briefly considered.

PRESSURE EFFECT IN FIRST SPECTRUM OF IRON

The wavelengths of the characteristic radiations or lines of a spectrum are measured by comparison with precisely determined lines of another spectrum which are photographed on an adjacent strip of the same spectrogram. An arc lamp with iron electrodes is the most generally used source of such standard wavelengths. The conditions of operation of such a source affect by a very small amount the wavelengths of the emitted radiations. If the source is enclosed in an airtight chamber and evacuated, the wavelengths will be diminished by an amount of the order of 1 part in a million. Similarly, the wavelengths are increased if the source is subjected to pressures greater than atmospheric. The International Astronomical Union has specified an arc in air as the source of standard iron wavelengths. For certain purposes, however, particularly astrophysical investigations, the vacuum arc is the preferred source of standards. It is important, therefore, that the variations in wavelength depending upon the source employed be well understood. RP1288 in the Journal of Research for April, describes a study undertaken by Curtis J. Humphreys in order to compare the International Standards with precisely measured wavelengths from the vacuum arc, and to interpret the pressure effect in relation to the theoretical classification of the iron spectrum.

HEAT AND FREE ENERGY OF FORMATION OF DEUTERIUM OXIDE

In the Journal of Research for April (RP1287), Frederick D. Rossini, John W. Knowlton, and Herrick L. Johnston

describe the calorimetric determination at 25° C of the ratios of the heats of formation of deuterium oxide and ordinary water in the liquid state, and of their heats of vaporization.

The data are used to calculate the heats and free energies of formation of deuterium oxide and the difference in the zero-point energies of protium oxide and deuterium oxide. It is shown that the zero-point energy so calculated is in accord with theoretical expectations.

HYDROCARBONS FROM KEROSENE

The work on the chemical constitution of petroleum being conducted at the Bureau by the American Petroleum Institute Research Project 6 was extended to the kerosene fraction of petroleum in July 1938. The first report of this work on the kerosene fraction appears in RP1289 by Beveridge J. Mair and Anton J. Streiff, published in the April number of the Journal of Research.

That part of the petroleum distilling between 114° and 144° C at a pressure of 56 mm Hg (corresponding approximately to 200° and 230° C at 760 mm Hg) was separated into a series of substantially constant-boiling fractions. From the material distilling between 127° and 133° C at 56 mm Hg, *n*-dodecane was isolated by crystallization.

The mother liquors from this process of crystallization and the remainder of the fractions of the distillate under investigation were separated into new fractions containing mixtures of paraffinic and naphthenic hydrocarbons. This separation of the original mixture of aromatic, paraffinic, and naphthenic hydrocarbons, into aromatic hydrocarbons on the one hand and paraffins plus naphthenes on the other, was accomplished by a systematic extraction with reflux, using a system of two solvents, methyl cyanide and Marcol (a commercial mixture of paraffinic and naphthenic hydrocarbons boiling above 230° C at 56 mm Hg), followed by a "clean-up" of the aromatic hydrocarbons by adsorption, with silica gel and a reextraction to concentrate the small amount of aromatics in the "tail" fractions.

The series of fractions containing the aromatic hydrocarbons were systematically distilled in fractionating columns of high efficiency (corresponding to about 100 theoretical plates). From the material boiling, at 56 mm Hg, between 127.0° and 127.5° C, 145° and 146.5° C, and 148.5° and 149.0° C, respectively, naphthalene, 2-methylnaphthalene, and 1-methylnaphthalene were isolated by fractional crystallization.

"Best" lots of each of the four hydrocarbons were prepared, with impurities estimated to be as follows in terms of mole fraction: *n*-dodecane, 0.0000 ±0.0006; naphthalene, 0.0006 ±0.0004; 1-methylnaphthalene, 0.0025 ±0.0011; 2-methylnaphthalene, 0.0000 ±0.0003.

ENERGY RELATIONS IN LEAD STORAGE BATTERIES

A knowledge of the thermochemical properties of sulfuric acid is needed as a basis for calculating heats of reaction. The electromotive force of a storage battery varies with the heat content of solutions throughout a rather wide range of concentrations. The battery problem has particular interest because the heat of reaction can be calculated in either of two ways, and comparison can be made of results based on entirely independent thermochemical and electrochemical data. The connecting link is the well-known equation of Gibbs-Helmholtz.

The thermochemical side of the problem is concerned with the heat of formation of the solid constituents of the cell, and the relative partial molal heats of sulfuric acid and water. It has been found possible to extrapolate the relative apparent molal heats of solution to infinite dilution and new calculations of the partial quantities have been made. At infinite dilution the battery reaction is identical with the calorimetric reaction. The heat of reaction at finite and useful concentrations of the working battery can be calculated on the basis of these data.

On the electrochemical side of the problem, new experimental data for the electromotive force and its temperature coefficient are now available. These have engineering applications in the operation of floating batteries which are becoming increasingly important as they are superseding batteries formerly operated in cycle service. Computations of the heat of reaction by the Gibbs-Helmholtz equation, employing the best data, has yielded results which are in suprisingly good agreement with the results of thermochemical calculations. The average difference over the whole range of acid concentrations which are usable in storage batteries is only ±0.12 percent.

Using similar methods for calculating the partial molal volumes of sulfuric acid, it was found that the effect of pressure on the electromotive force is

too small to be of engineering significance. This answers a question which arises occasionally in connection with the use of batteries at high altitudes.

RP1294 by D. Norman Craig and George W. Vinal, in the April number of the Journal of Research, contains the complete account of this investigation.

pH IN ALKALINE CYANIDE PLATING BATHS

For many years the pH of acid plating baths has been measured and controlled, especially in nickel plating, but only recently has attention been given to similar control of alkaline cyanide plating baths, to which it is more difficult to apply either the electrometric or the colorimetric method of measurement. In the Journal of Research for April (RP1291), M. R. Thompson describes comparative readings recently made on buffered alkaline chloride solutions with the hydrogen electrode which is free from salt error by definition, with a commercial glass electrode, and with three colorimetric sets. Readings of pH by the glass electrode were too low. Readings with the indicators were usually too high, varying with the indicator. Salt errors of the glass electrode and of the indicators thus determined were employed for approximate corrections to readings on several cyanide copper solutions in which the hydrogen electrode could not be used. These were applied on the assumption that salt errors of alkaline chloride and cyanide are equal. Corrected readings by the two methods agreed approximately but not closely enough for standard corrections to be adopted at this time. Further experience with various plating baths may permit the adoption of such corrections. Meanwhile, it is recommended that investigators state the type and make of apparatus employed for obtaining any data published on the pH of alkaline cyanide plating baths, in order to correlate the results obtained by different observers.

OUTDOOR EXPOSURE TESTS OF NICKEL AND CHROMIUM COATINGS

No accelerated tests are entirely satisfactory for determining even the relative protective value of plated coatings. Therefore, atmospheric exposure tests have been conducted through the cooperation of the American Electroplaters' Society, American Society for Testing Materials, and the Bureau.

A total of several thousand specimens of steel, cast iron, copper, brass, zinc, and zinc-base die-castings were plated under defined conditions with known thicknesses of copper, nickel, and chromium. They were then exposed in two industrial, two marine, and two suburban locations, and were inspected at intervals. The extent of corrosion or of other evidences of failure was expressed on a numerical scale. The quality of the coatings was then expressed as the percentage of a perfect score for the period of exposure (from 1 to 2.5 years).

The results which are given in RP1293 by William Blum and Paul W. C. Strausser, in the April Journal of Research, show that on all three types of basis metal the protective value increased, although not linearly, with the thickness of the nickel (or of copper plus nickel). In thin coatings, an initial layer of copper adds little to the protection, but in thicker coatings it is nearly equivalent to an equal thickness of nickel. To furnish about the same degree of protection, a greater total thickness of copper plus nickel is required on steel than on zinc, and on zinc than on brass. The conditions employed in nickel plating, including the use of several proprietary "bright nickel" deposits, had relatively small effects.

The exact thickness (from 0.00001 to 0.00003 inch) of the customary thin, ornamental chromium deposits had little effect, but coatings as thick as 0.00005 inch tend to crack and permit corrosion, especially over nickel on brass.

In general, the application of a thin film of grease (or wax) adds to the protective value, but is no panacea for poor, porous coatings. In marine locations the film of grease may accelerate corrosion, possibly by retention of salt, unless it is frequently renewed.

ELEVENTH PROGRESS REPORT ON SILVER RESEARCH PROJECT

The Eleventh Progress Report of the American Silver Producers Research Project, which has its headquarters at the Bureau, was released on March 1. The report shows that a broad foundation of fundamental information has been laid covering possible industrial uses for silver, and that from now on commercial companies should be allowed to take a proprietary interest in

further developments along such lines as they deem best.

Silver has been proved to be valuable for coatings ranging from very thin ones (0.000 005 in. thick) for lining beverage cans to thick coatings for industrial processes. Higher efficiency of electric generators has been secured through the use of silver contacts as the result of the investigation at Rensselaer Polytechnic Institute. At Cornell University, where experiments have been made on silver as a fungicide, difficulty was experienced in securing satisfactory adhesion to the leaves of plants. However, further experiments are to be made with metallic salts to see if this difficulty can be overcome. A great deal of information on the characteristics of various alloys of silver and the common elements has been developed at the Bureau, and some of these combinations appear promising, as for instance, to prevent corrosion without sacrifice of other desirable properties.

Since the project is scheduled for termination on May 31, it is important that manufacturers desiring to familiarize themselves with such matters as the technique of coating of beverage cans should communicate with those in charge of the project as soon as possible.

Results of the work are to be incorporated in a book of 500 or 600 pages entitled "Silver in Industry." In order to round out the subject, guest authors have been invited to contribute certain chapters on their specialties. A bibliography and patent list will be included. This volume will be issued by the Reinhold Publishing Corporation, of New York, about June 1, 1940.

MATHEMATICAL TABLES

An error occurs in this item, on page 28 of Technical News Bulletin 275 (March 1940). The price of the tables of the exponential function e^x should be $2 instead of $2.50.

NEW AND REVISED PUBLICATIONS ISSUED DURING MARCH 1940

Journal of Research[2]

Journal of Research of the National Bureau of Standards, volume 24, number 3, March 1940 (RP1280 to RP1286, inclusive). Price 30 cents. Annual subscription, 12 issues, $3.50.

[2] See footnote on next page.

Research Papers[2]

[Reprints from the December 1939 Journal of Research]

RP1259. Physical properties of purified 2,2,3-trimethylpentane. Donald B. Brooks, Frank L. Howard, and Hugh C. Crafton, Jr. Price 5 cents.

RP1260. Heat of fusion of ice. A revision. Nathan S. Osborne. Price 5 cents.

RP1261. Potentiometric method for the accurate measurement of hydrogen ion activity. Walter J. Hamer and S. F. Acree. Price 5 cents.

RP1262. Retention of aluminum ion and hydrogen ion in papers. Herbert F. Launer. Price 5 cents.

RP1263. Polar structure of some benzein indicators. Myron A. Elliott and S. F. Acree. Price 5 cents.

RP1264. Zeeman effect in the second and third spectra of xenon. Curtis J. Humphreys, William F. Meggers, and T. L. deBruin. Price 5 cents.

RP1265. An improved electric hygrometer. Francis W. Dunmore. Price 5 cents.

Circulars[2]

C425. Legal weights per bushel for various commodities. Ralph W. Smith. (Supersedes C10.) Price 5 cents.

Building Materials and Structures[2]

[Persons who wish to be notified of new publications in the Building Materials and Structures series as soon as they are available, should write to the Superintendent of Documents, Government Printing Office, Washington, D. C., asking that their names be placed on the special mailing list maintained by him for this purpose.]

BMS33. Plastic calking materials. J. J. Tregoning, K. A. Milliken, A. Hockman, W. H. Sligh, and D. W. Kessler. Price 10 cents.

BMS38. Structural properties of two "Dunstone" wall constructions sponsored by the W. E. Dunn Manufacturing Co. Herbert L. Whittemore, Ambrose H. Stang, and Douglas E. Parsons. Price 10 cents.

BMS39. Structural properties of a wall construction of "Pfeifer Units" sponsored by the Wisconsin Units Co. Herbert L. Whittemore, Ambrose H. Stang, and Douglas E. Parsons. Price 10 cents.

Miscellaneous Publications[2]

M164. Report of the 29th National Conference on Weights and Measures attended by representatives from various States, held at the National Bureau of Standards, Washington, D. C., June 6, 7, 8, and 9, 1939. Price 25 cents.

Technical News Bulletin [2]

Technical News Bulletin No. 275, March 1940. Price 5 cents. Annual subscription, 50 cents.

MIMEOGRAPHED MATERIAL

Letter Circulars

[Letter Circulars are prepared to answer specific inquiries addressed to the National Bureau of Standards and are sent only on request to persons having definite need for the information. The Bureau cannot undertake to supply lists or complete sets of Letter Circulars or send copies automatically as issued.]

LC579. List of Commercial Standards, revised to January 1, 1940. (Supersedes LC568.)

LC580. Railway track scale testing service of the National Bureau of Standards, fiscal year 1939 (July 1, 1938 to June 30, 1939).

LC581. Color of illuminant and efficiency of the worker. (Supersedes LC352.)

LC582. List of Simplified Practice Recommendations, revised to January 1, 1940. (Supersedes LC561.)

LC583. Literature on dry-cleaning.

[2] Send orders for publications under this heading only to the Superintendent of Documents, Government Printing Office, Washington, D. C. Subscription to Technical News Bulletin 50 cents per year; Journal of Research $3.50 per year (to addresses in the United States and its possessions, and in countries extending the franking privilege); other countries, 70 cents and $4.50, respectively.

RECENT BUREAU ARTICLES APPEARING IN OUTSIDE PUBLICATIONS [3]

Where a woman's hand comes in. C. Matilda Sparks. Goucher Alumnae Quar. (Goucher College, Baltimore, Md.) 18, No. 2, 10 (February 1940).

Properties of ordinary water-substance in all its phases—water vapor, water, and all the ices. N. Ernest Dorsey. Am. Chem. Soc. Monograph No. 81 (Reinhold Publishing Corp., 330 West 42d St., New York, N. Y.) (1940).

Materials represented as synthetic rubber. Archibald T. McPherson. India Rubber World (420 Lexington Ave., New York, N. Y.) 101, No. 4, 43 (January 1, 1940).

Airplane dopes. F. W. Reinhart and G. M. Kline. Ind. Eng. Chem. (Mills Building, Washington, D. C.) 32, 185 (February 1940).

The effects of aluminum and of antimony on certain properties of cast red brass. H. B. Gardner and C. M. Saeger. Foundry Trade J. (49 Wellington St., London, W. C. 2, England) 62, 78, and 97 (January 25 and February 1, 1940).

What is the matter with building codes? George N. Thompson. Public Management (1313 East 60th St., Chicago, Ill.) 22, 38 (February 1940).

[3] These publications are not obtainable from the Government. Requests should be sent direct to the publishers.

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